

Technical Data Sheet Instantbond™ 140

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Product Description

Hernon® Instantbond™ 140 is a single component, high viscosity, cyanoacrylate instant adhesive formulated specifically for the electronic industry. This product conforms to CID A-A-3097 Type II, Class IV.

Typical Applications

- Secures engineering change wires to circuit boards.
- Mounting edge guides, standoffs and board stiffeners.
- Securing components prior to wave soldering.
- For most rubber, plastic or metal substrates.
- Providing strain relief to heavy components.
- Providing fast surface curing with **Hernon® EF® Accelerator 52**.

Product Benefits

Instantbond™ 140 develops handling strength within seconds and a fully cured resilient bond within 24 hours. It can bond a wide variety of surfaces to include metals, thermoplastics, ceramics, leather, cork, and paper.

Typical Properties (Uncured)

Property	Value
Chemical Type	Ethyl Cyanoacrylate
Appearance	Clear liquid
Viscosity @ 77°F (25°C), cP	4,000 to 6,000
Specific gravity	1.10
Flash point	See MSDS

Typical Properties (Cured)

Cured 24 Hours @ 22°C

Physical Properties

Property	Value
Coefficient of thermal expansion, K ⁻¹ , ASTM D696	80 × 10 ⁻⁶
Coefficient of thermal conductivity, W/(m-K), ASTM C177	0.1
Temperature range, °C, (°F)	-55 to 100 (-65 to 212)
Gap Fill, mm (in.)	0.203 (0.008)

Electrical Properties

Property	Value
Dielectric Strength, kV/mm ASTM D149	25
Dielectric Constant @ 0.05 kHz ASTM D150	2.3 2.3 2.3
Dissipation Factor @ 0.05 kHz ASTM D150	< 0.02 < 0.02 < 0.02
Volume Resistivity, Ω·cm ASTM D257	10 × 10 ¹⁵

Typical Curing Performance

Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The table below shows the fixture time achieved on different materials at 22°C / 50% relative humidity. Fixture time is defined as the time to develop a shear strength of 0.1 N/mm².

Substrate	Fixture Time (seconds)
Steel	20 to 50
Aluminum	10 to 30
Neoprene	< 5
Nitrile Rubber	< 5
ABS	15 to 40
PVC	20 to 50
Polycarbonate	30 to 70
Phenolic	10 to 40

Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

Cure Speed vs. Accelerator

Where cure speed is unacceptably long due to large gaps, applying accelerator to the surface will improve cure speed. However, this can reduce ultimate strength of the bond and therefore testing is recommended to confirm effect.

Typical Cured Performance

Shear Strength

Cured 24 Hours @ 22°C - tested according to ISO 4587

Substrate	Shear Strength, N/mm ² (psi)
Steel (grit blasted)	17.9 to 26.2 (2600 to 3800)
Aluminum (etched)	11.0 to 19.3 (1,600 to 2,800)
ABS	> 6.0 (> 870)
PVC	> 6.0 (> 870)
Polycarbonate	> 5.2 (> 750)
Phenolic	5.2 to 15.2 (750 to 2200)
Neoprene	> 10 (> 1450)
Nitrile	> 10 (> 1450)

Tensile Strength

Tested according to ISO 6922

Substrate	Cure Time at 22°C	N/mm ² (psi)
Steel	24 hours	12.1 to 25.2 (1750 to 3650)
Buna-N	30 seconds	> 7.0 (> 1015)

Typical Environmental Resistance

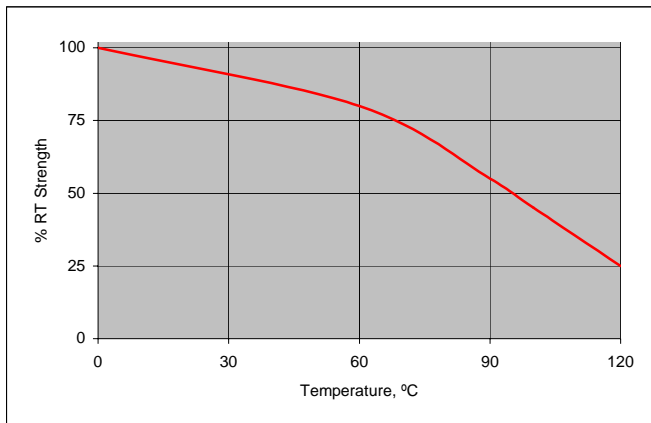
Cured for 1 week @ 22°C

Shear Strength, ISO 4587

Steel lap-shear specimens (grit blasted)

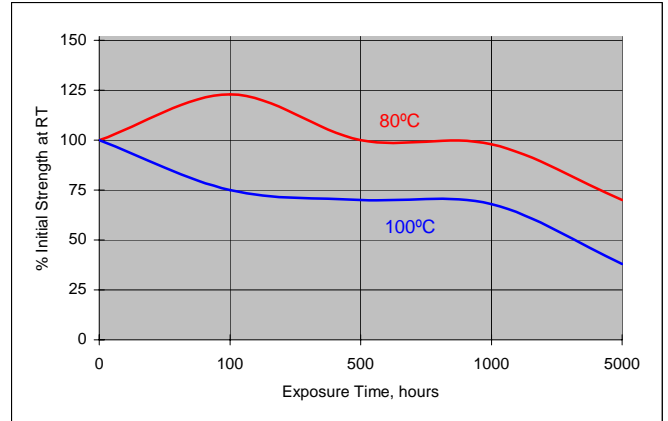
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested at 22°C



Chemical/Solvent Resistance

Aged under condition indicated - Tested at 72°F (22°C).

Chemical/Solvent	Temp (°C)	% of Initial Strength		
		100h	500h	1000h
Motor Oil	40	100	100	95
Gasoline	22	100	100	100
Isopropanol	22	100	100	100
Freon TA	22	100	100	100
1,1,1 Trichloroethane	22	100	100	100
Heat / 95% RH	40	100	100	95

General Information

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions For Use

1. Apply one coating of EF® accelerator to the area to be bonded, by spray, brush or dipping. Prior to application, contaminated surfaces may need special cleaning or degreasing to remove any dissolvable contamination.

NOTE: Because the solvent base of EF® accelerators can affect certain plastics or coatings, checking all surfaces for compatibility is recommended.

2. Allow the accelerator time to evaporate under good ventilation until the surfaces are completely dry (approx. 15 to 30 seconds).

3. Apply **Instantbond™ 140** cyanoacrylate product immediately after solvent has dried.

NOTE: If cyanoacrylate is not applied to the accelerator within 45 seconds, accelerator should be reapplied.

4. Where possible, move surfaces in relation to each other for a few seconds on assembly to properly distribute the adhesive and for maximum activation.
5. Secure the assembly and await fixturing before any further handling.

Storage

Cyanoacrylate adhesives must be stored under refrigeration at a temperature of 40°F ± 5°F for extended shelf life. Before opening, the containers must be warmed to room temperature, otherwise, water may condense into the bottle and cause hardening of the adhesive. To prevent contamination of unused adhesive, do not return product to its original container.

Dispensing Equipment

Hernon® offers a complete line of semi and fully automated dispensing equipment. Contact **Hernon® Sales** for additional information.

These suggestions and data are based on information we believe to be reliable and accurate, but no guarantee of their accuracy is made. HERNON MANUFACTURING®, INC. shall not be liable for any damage, loss or injury, direct or consequential arising out of the use or the inability to use the product. In every case, we urge and recommend that purchasers, before using any product in full scale production, make their own tests to determine whether the product is of satisfactory quality and suitability for their operations, and the user assumes all risk and liability whatsoever, in connection therewith. Hernon's Quality Management System for the design and manufacture of high performance adhesives and sealants is registered to the ISO9001:2000 Quality Standard.